S/M No. : FR631KD012

DAEWOO

Service Manual

Refrigerator

Model: FR-631KD
FR-710KR

✔ **Caution**

: In this Manual, some parts can be changed for improving, their performance without notice in the parts list. So, if you need the latest parts information,please refer to PPL(Parts Price List) in Service Information Center (http://svc.dwe.co.kr).

DAEWOO ELECTRONICS CO., LTD.

http://svc.dwe.co.kr Jan. 2004

SAFETY AND PRECAUTIONS

1) For starters, be sure to check any chances of the leakage of electricity

2) You could handle a part in the vicinity of electricity after unplugging

3) You should put on rubber glovers to prevent an electric shock on operation test

4) Make sure the rated current, voltage, capacity before using an instrument

5) Keep your wet hands away from the metal goods in the freezer compartment not to be frostbitten

6) Be careful not to let water to permeate the electric part in the machine room

7) with the door open during your working, you might be damaged by that door

8) You should give a tilt to the refrigerator for your safe after removing the breakable goods inside the refrigerator

9) You'd better use cotton gloves if you fix it up around the evaporator

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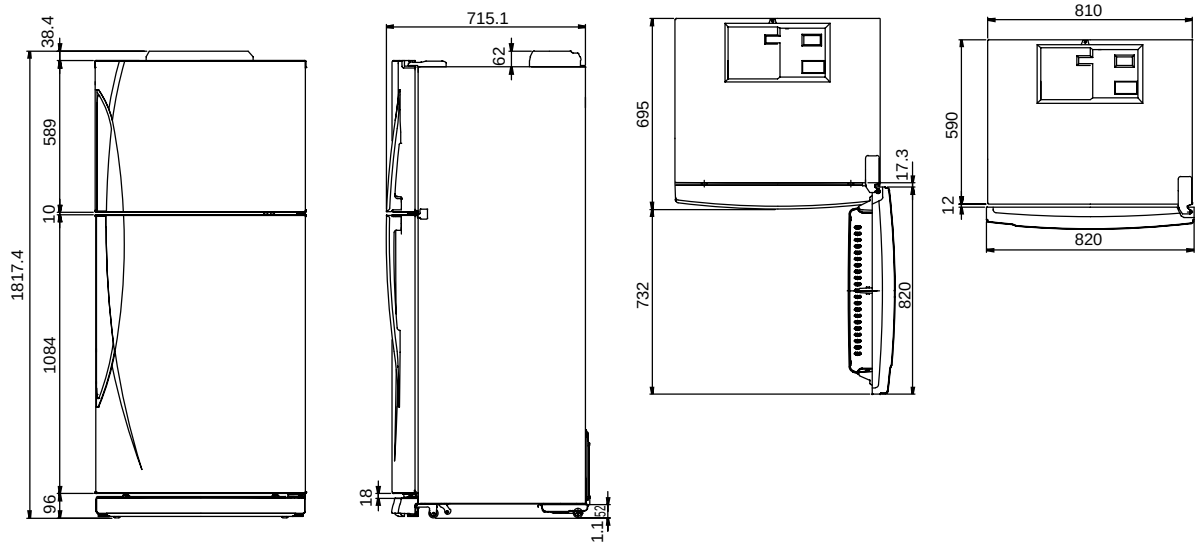
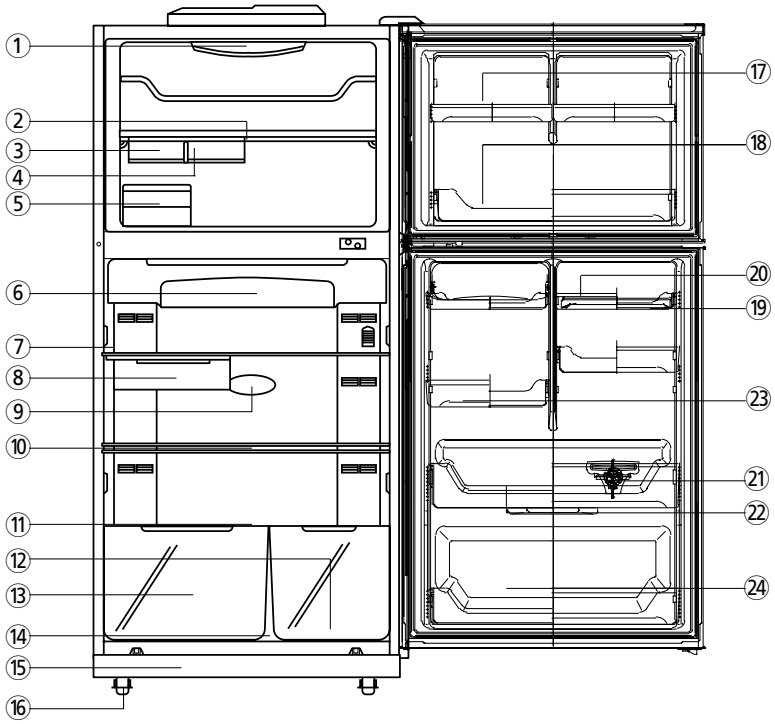
1. EXTERNAL VIEWS

1-1. EXTERNAL SIZE



1-2. NAME OF PARTS



① Freezer Compartment Lamp
② Shelf Ffreezer
③ Case Icing
④ Guide Icing
⑤ Ice Box
⑥ Refrigerator Compartment Lamp
⑦ Cover Cubic Duct
⑧ Fresh Case
⑨ Shelf Refrigerator
⑩ Deodorant
⑪ Cover Vegetable
⑫ Case Vegetable(B)
⑬ Case Vegetable(A)
⑭ Guide Vegetable
⑮ Front Grille
⑯ Adjustable Foot
⑰ Freezer Pocket Top
⑱ Freezer Pocket Under
⑲ Egg Pocket
⑳ Egg Tray
㉑ Guide Bottle
㉒ Bottle Pocket
㉓ Multi Pocket
㉔ Multi Pocket

2. SPECIFICATIONS

2-1. OUTLINE

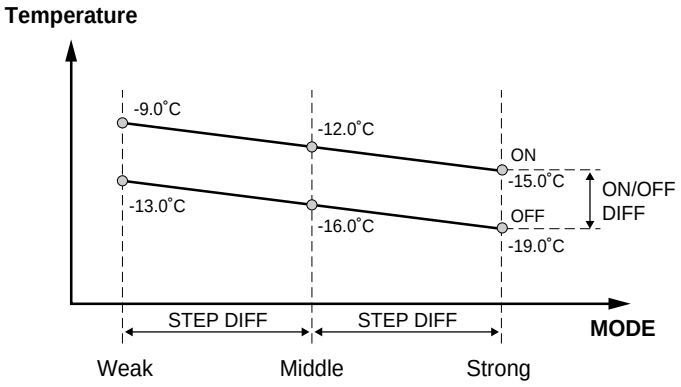
DIVISION		CONTENTS
MODEL NAME		FR-631KD
USABLE CAPACITY (L)	FREEZER	138
	REFRIGERATOR	366
	TOTAL	504
EXTERNAL DIMENSION(mm)	WIDTH	818
	DEPTH	752
	HEIGHT	1818
REFRIGENT	R134a	110
COOLING &CONTROL SYSTEM	COOLING SYSTEM	Fan Cooling System
	DEFROST SYSTEM	Fin Evaporator Forced
	DEFORST CONTROL	Automatic Start & Stop
NET WEIGHT (kg)		85

3. OPERATION AND FUCTIONS

3-1. Function List

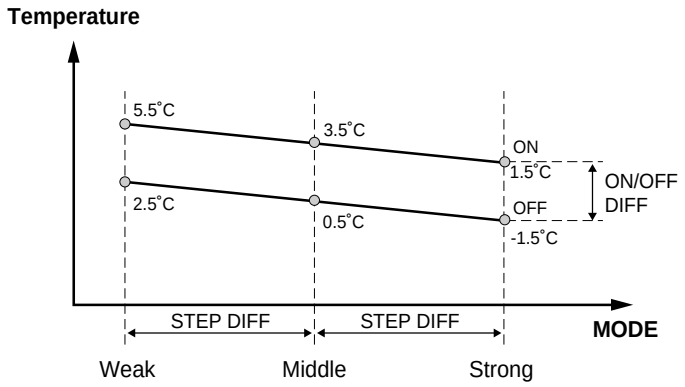
1-1. Freezer Temperature

Input	Control Object	Contents	Remark
1. Temperature Dial 2. F Thermostat 3. ON / OFF DIFF.	1. COMP 2. F-FAN 3. C-FAN	1. Freezer temperature is controlled by Freezer Temperature Dial. Weak → Middle → Strong 2. COMP, F-FAN and C-FAN are controlled by ON/OFF point of each mode. 3. ON / OFF DIFF of Freezer : 4.0°C (Middle OFF Point of Freezer : -12.0°C) 4. Strong / Weak Step DIFF of Freezer : 3.0°C 5.	

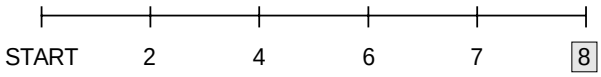


1-2. Refrigerator(Fresh Food Compartment) Temperature

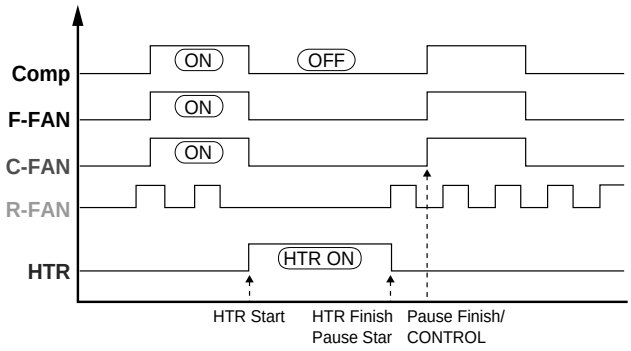
Input	Control Object	Contents	Remark
1. Temperature Dial 2. R Thermostat 3. ON / OFF DIFF	1. R-Fan	1. efrigerator temperature mode is set by the temperature dial. Weak → Middle → Strong 2. R-FAN is controlled by ON / OFF point of each mode. 3. ON / OFF DIFF of Refrigerator : 3.0°C (Middle OFF Point : 0.5°C) Strong / Weak STEP DIFF : 2°C * When R-Thermo reaches to R-FAN ON point, R-FAN turns ON ; OFF point, R-FAN turns OFF.	



1-3. Defrosting Cycle

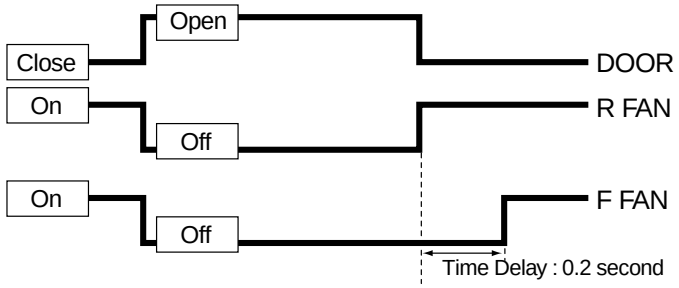
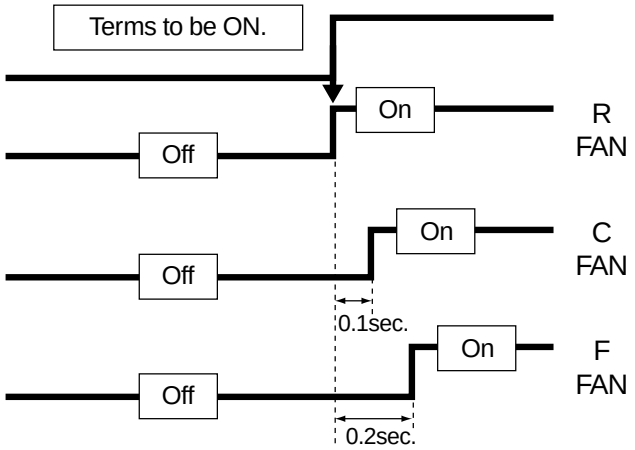
Input	Control Object	Contents	Remark
1. Accumulated work time of COMP	1. Defrosting Mode	1. What to consider in determining the defrosting cycle ☞ Total (accumulated) work time of COMP 2. Conditions to start defrosting mode ☞ When total work time of COMP is more than 8, defrosting mode starts unconditionally.  (Total Work Time of COMP)	

1-4. Defrosting Mode

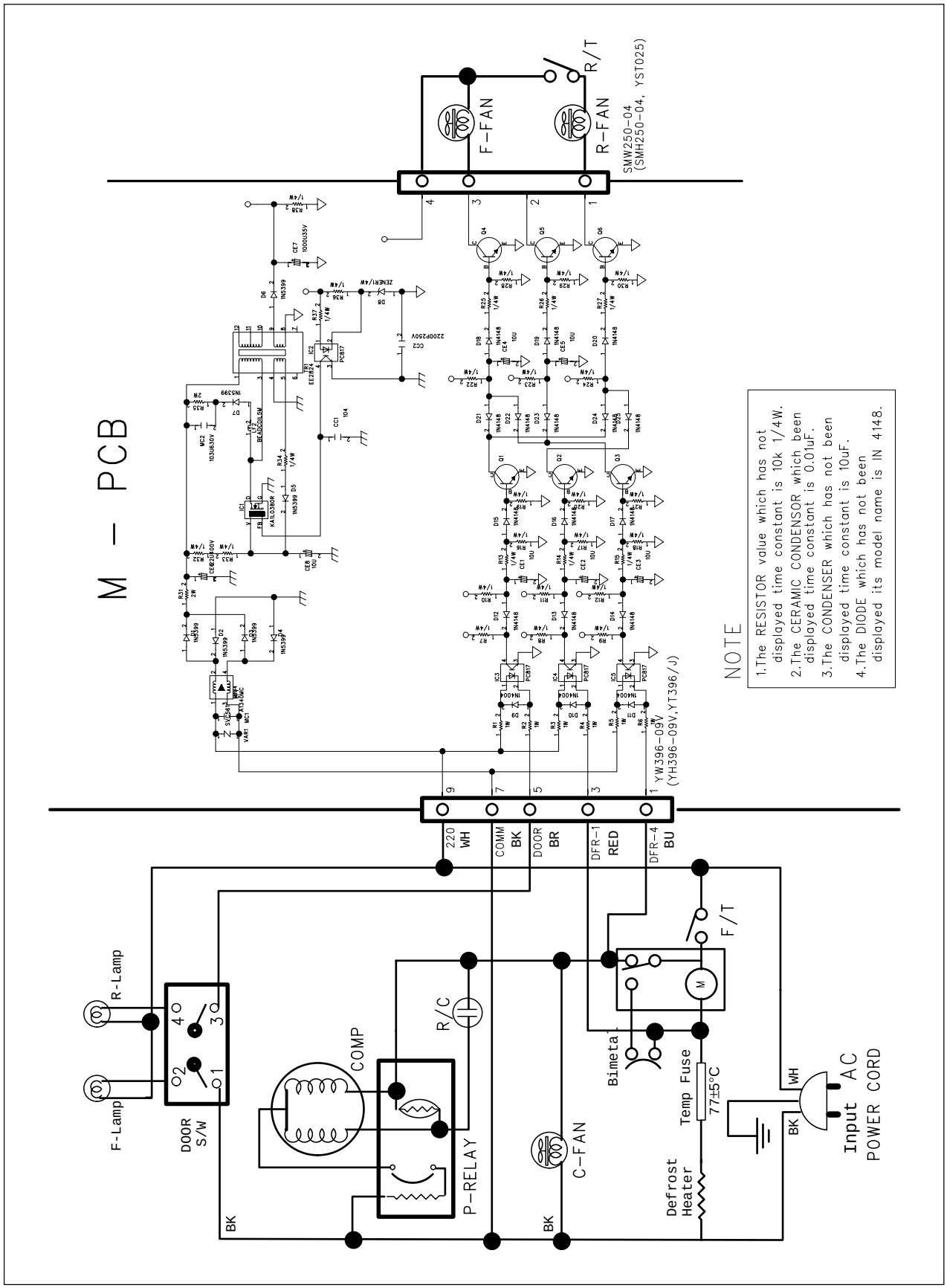
Input	Control Object	Contents	Remark
1.Defrosting Cycle	1. COMP 2. F-FAN 3. R-FAN 4. HEATER	1. Defrosting Mode Control → 1) COMP, F/R/C-FAN: Control Heater Defrosting → 1) If Bi-Metal is over 10, Heater turns Off. 2) COMP, F/R/C FAN: Off Pause → 1) Pause: 5 minutes 2) COMP, F/C-FAN: Off 3) R FAN: Control Control → 1) COMP, F/R/C FAN: Control 2. Time Chart in Defrosting Mode  3. Output Control & Limit Time of Each Defrosting Mode (see table below) 1) When defrosting starts COMP and F/R/C-FAN turn Off. 2) R Fan is ON/OFF Controlled in Pause mode.	

	Control	Heate Defrosting	Pause	Control
COMP	ON/OFF	OFF	OFF	ON/OFF
F-FAN	ON/OFF	OFF	OFF	ON/OFF
R-FAN	ON/OFF	OFF	ON	ON/OFF
HEATER	OFF	ON	OFF	OFF
Limit Time	–	If Bi-metal≥10°C, HTR turns Off.	5min.	–

1-5. Time Delay of Electrical Parts

Input	Control Object	Contents	Remark
1. Door Switch	1. F-FAN 2. R-FAN	1. F/R-Fan movement by Door Switch  - When door is open, F-Fan and R-Fan turn Off simultaneously. - When Door SW is closed and Fans turn On, R-Fan first turns on and 0.2second later F-Fan turns On. 2. Fan Delay and Priority - R FAN ON ---> ON without delay - F FAN ON ---> ON after 0.2second delay - C FAN ON ---> ON after 0.1second delay  - In case of DC-Fan initial movement, R-Fan starts first, then C-Fan and F-Fan work due to the over current protection.	- R-Fan turns Off when Door Switch turns On.

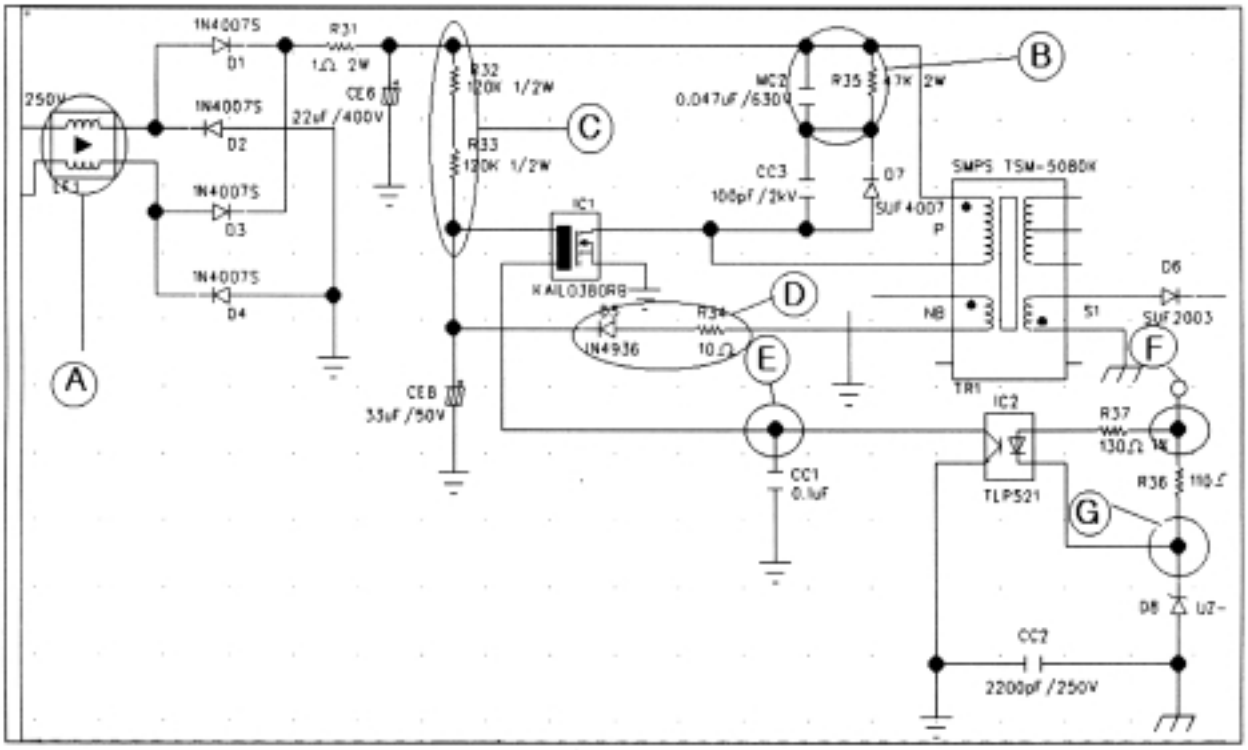
3-2. Circuit & Wire Diagram



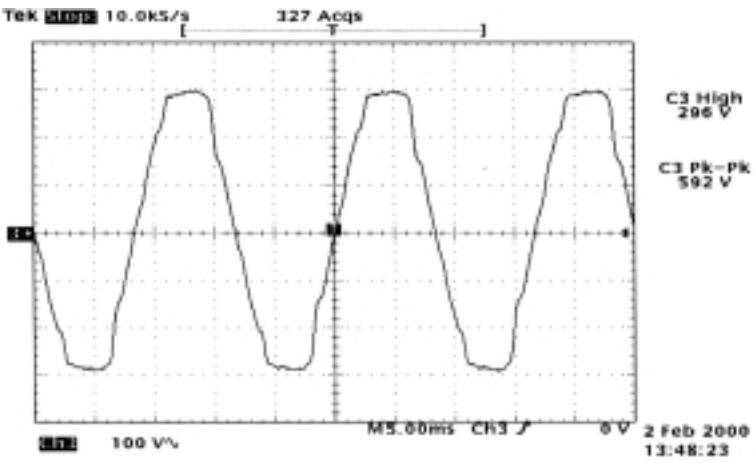
3-3. Circuit

1) Power Part

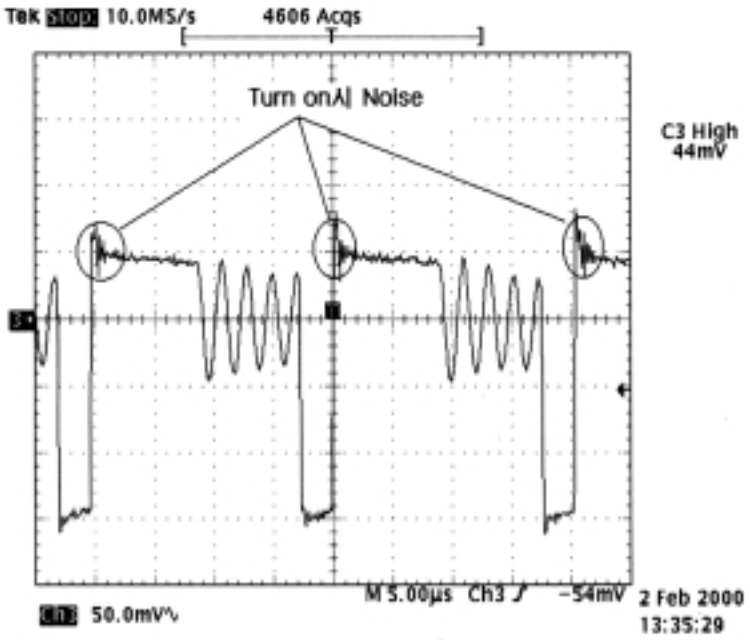
1-1) Circuit Diagram



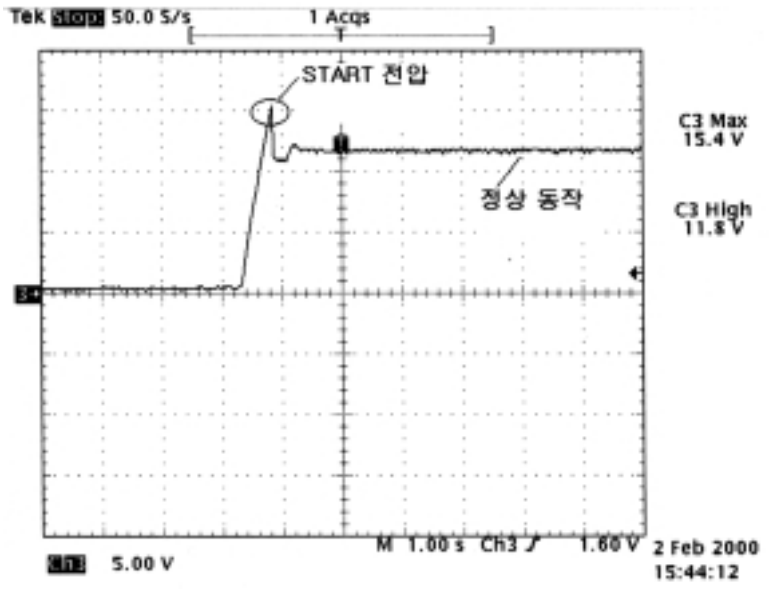
1-2) Noise Prevention of Line Power

Point	Oscilloscope Measurement	Remark
A		- Filter function to prevent the Line Voltage Noise under 20MHz

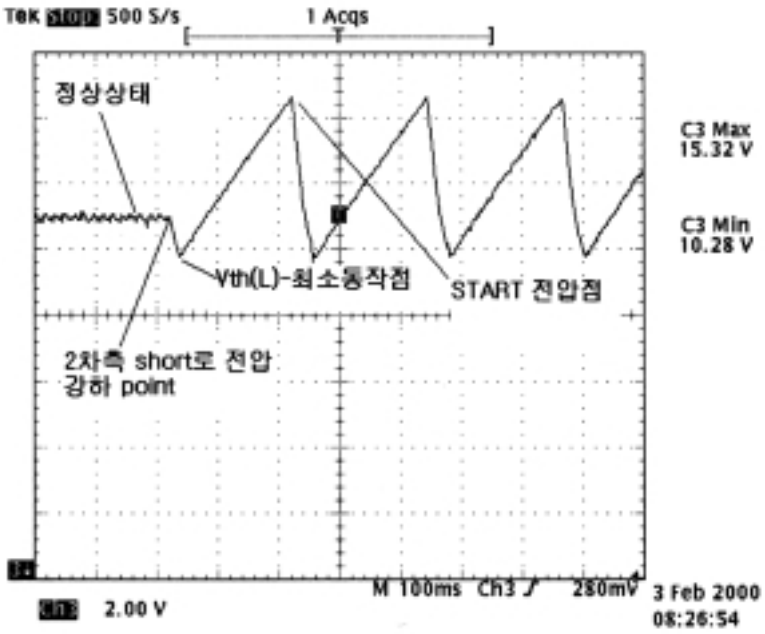
1-3) Noise Prevention in Turn-on of Switch Power IC

Point	Oscilloscope Measurement	Remark
B		- Prevention of Surge Noise when Switch Power IC1 turns on.

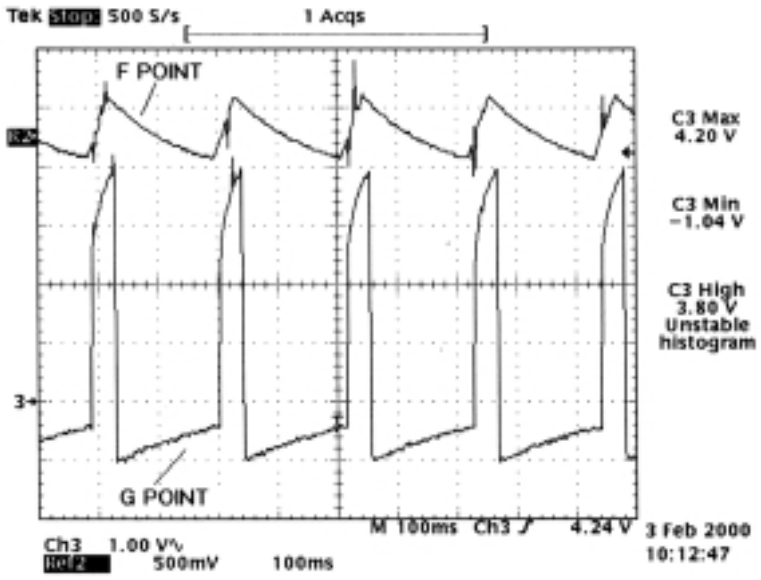
1-4) Initial Voltage of Switch Power IC

Point	Oscilloscope Measurement	Remark
C		- IC1 Initial Movement Circuit - Initial Voltage : 15V - After Initial Movement : 12V. - Below 10V : Reset and returns to initial state.

1-5) Power Protection Function

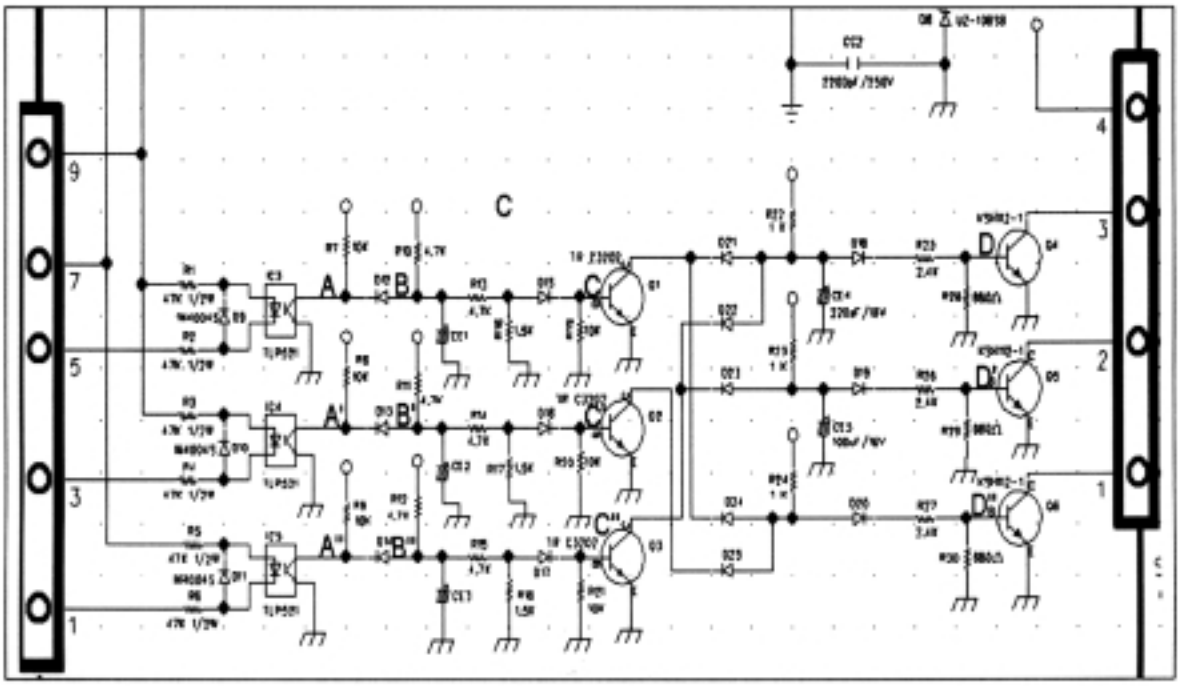
Point	Oscilloscope Measurement	Remark
D		- Circuit Protection Function - Abnormal Mode of Short etc. at 2nd Side - When Vcc is sensed as "Below 10V", it blocks the power to protect the circuit.

1-6) Constant Voltage Control Circuit

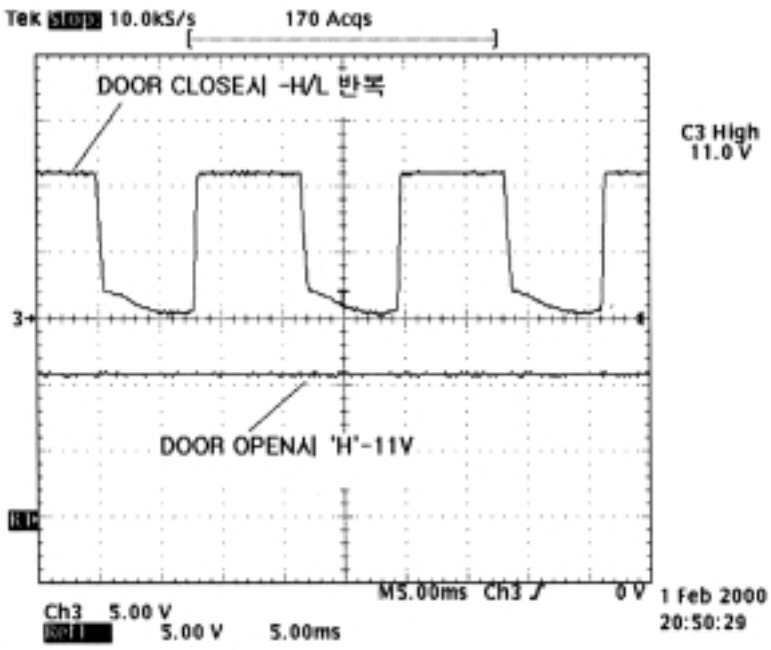
Point	Oscilloscope Measurement	Remark
E,F,G		- Control Mode at Non-constant Voltage - F point : "Below 10V Wave". - Constant Voltage Mode Control by Pulse Width Change according to voltage

2) Output Control Part

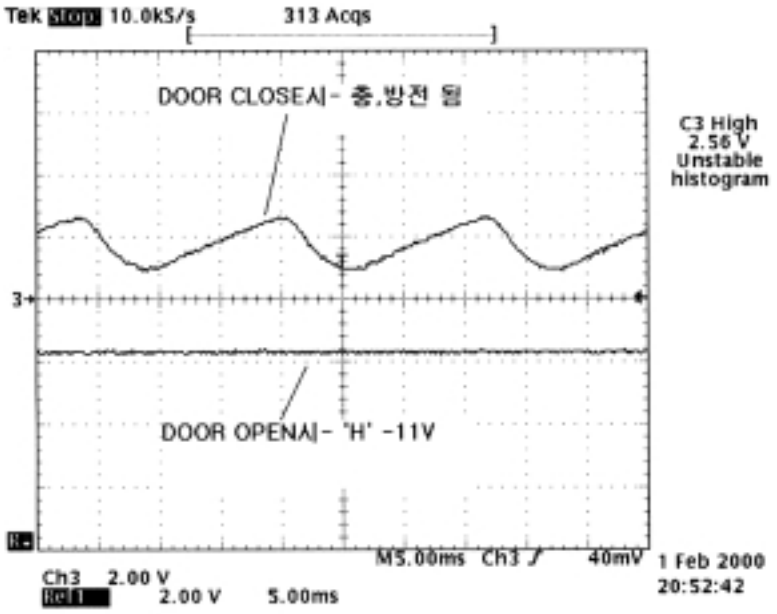
2-1) Circuit Diagram



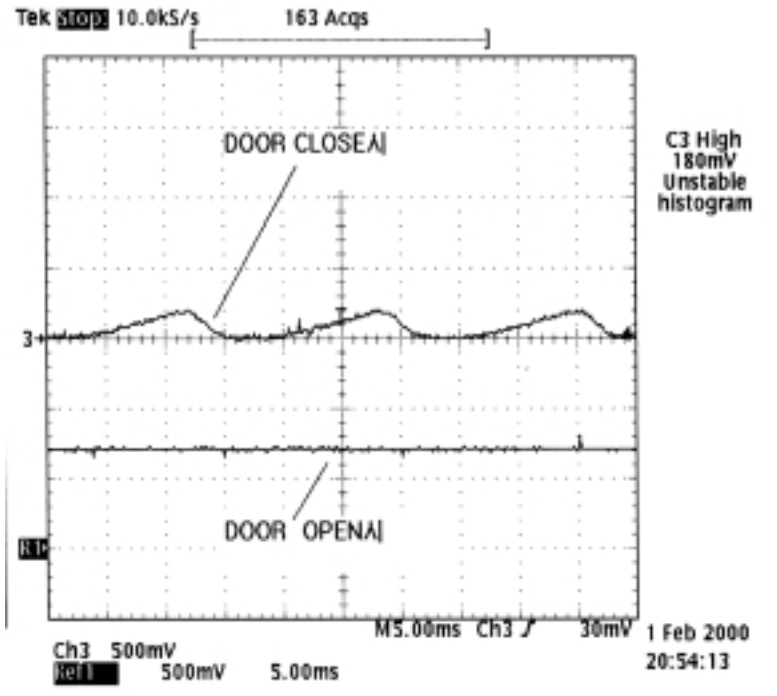
2-2) Wave of Point A-A" in Control Mode

Point	Oscilloscope Measurement	Remark
A-A"		- In CONTROL A : H/L Signal Repetition A' : H/L Signal Repetition A" : H/L Signal Repetition - At Door Open A : H Signal A' : H/L Signal Repetition A" : H/L Signal Repetition - In Defrosting A : H/L Signal Repetition A' : H Signal A" : H Signal

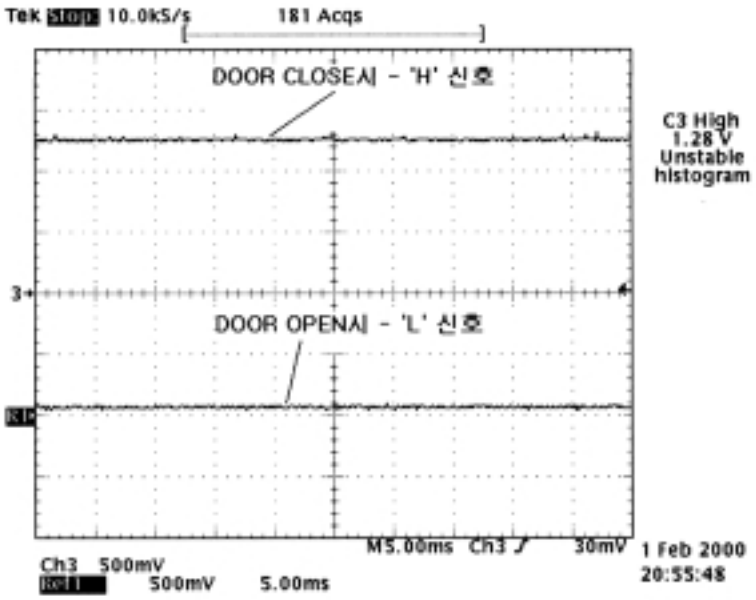
2-3) Wave of Point B-B" in Control Mode

Point	Oscilloscope Measurement	Remark
B-B"		- At Door Close * CE1 of Point B charges & discharges according to ON/OFF of point A. * Point B Voltage : 1.5V * Logic Signal : L - At Door Open * Point B Voltage : 6.5V * Logic Signal : H

2-4) Wave of Point C-C" in Control Mode

Point	Oscilloscope Measurement	Remark
C-C"		- At Door Close * Point C Voltage : 0.2V * Logic Signal : L * Q1 TR does not work. - At Door Open * Point C Voltage : 0.7V * Q1 TR works.

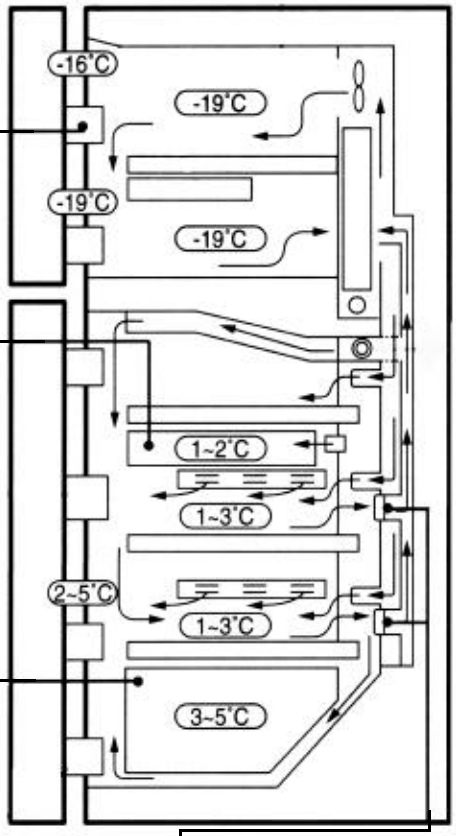
2-5) Wave of Point D-D" in Control Mode

Point	Oscilloscope Measurement	Remark
D-D"		- At Door Close * Point D Voltage : 1.3V * Fan work is possible due to Q4-5 flow. - At Door Open * Point D Voltage : 0.2V * Fan does not work.

4. DIAGRAM

4-1. AIR FLOW DIAGRAM

Freezer
Pleas don't put bottles such as beer, beverage etc.
It might be broken because of freezing



Freezer pocket
Please don't put long term storing items such as ice cream etc.
It might be melted because of opening the door freguently.

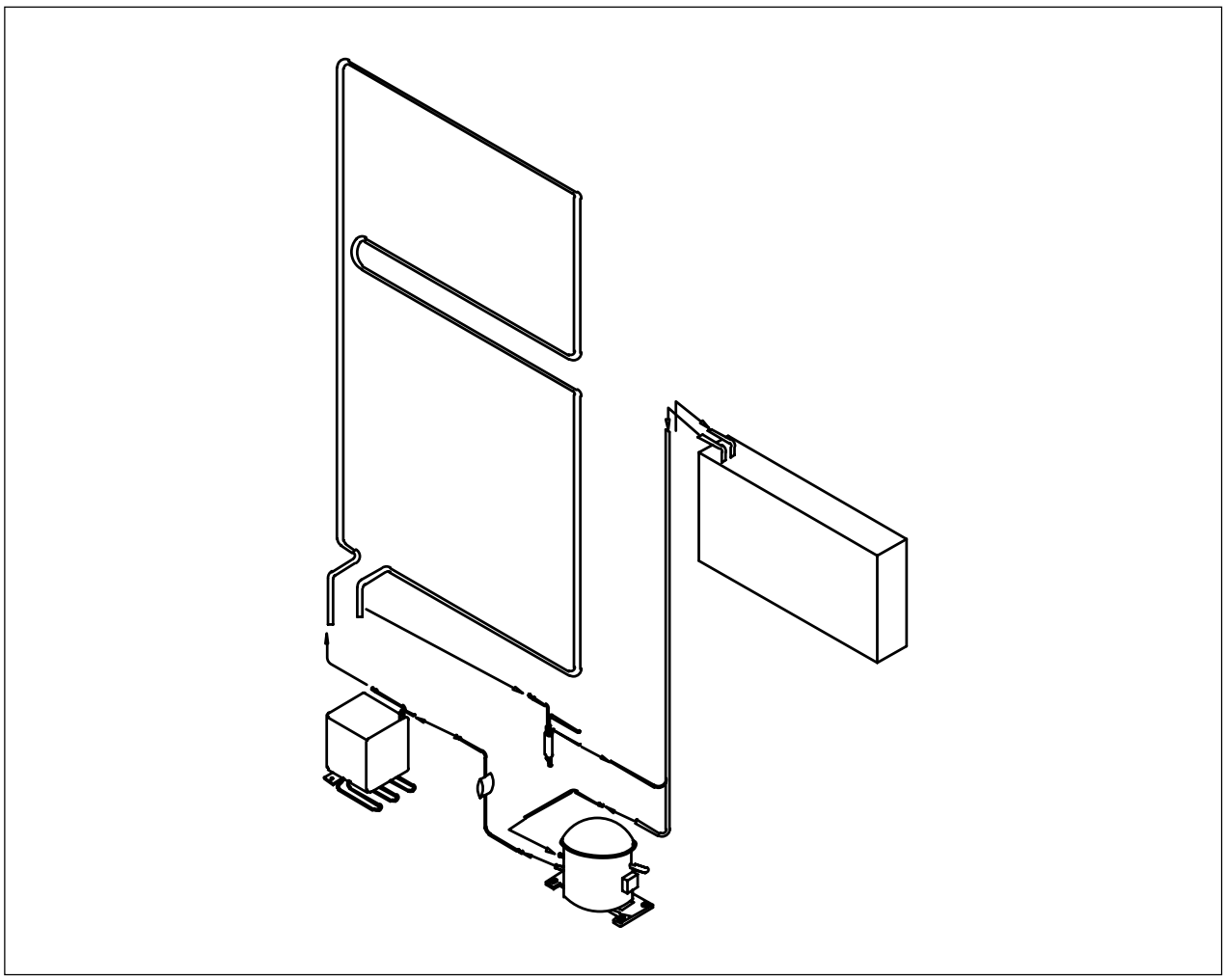
Chilled room
It is good for the storage of fishes and meats.

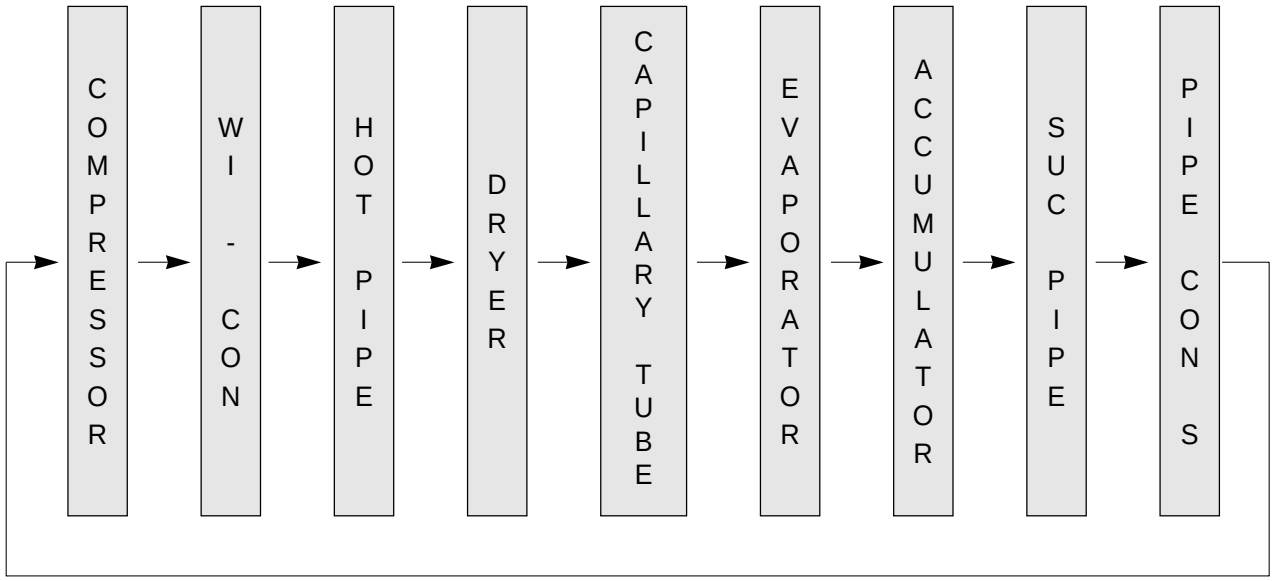
Crisper
It is suitable to store vegetable and fruit.
The moisture panel which is attached to the cover humidity properly.
Vegetable and fruit would be better to

Inlet of cooling air
It should not be blocked with food etc. as it is the inlet where cooling air returns.

Multiple outlet of cooling air.
Please don't put in vegetable etc. which contain moisture. It might be frozen because of low temperature.

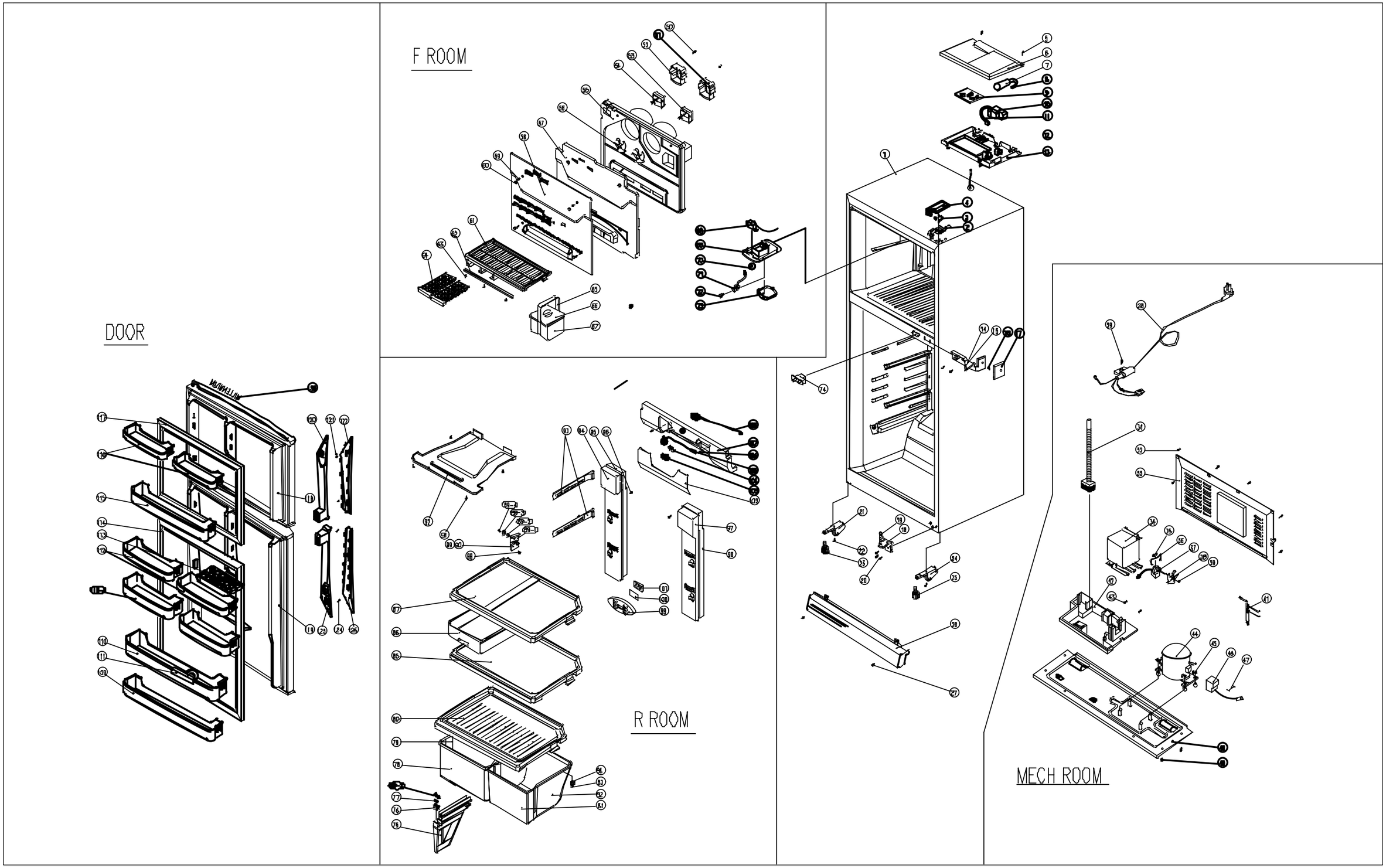
4-2. REFRIGRANT CYCLE DIAGRAM





5. EXPLODED VIEW AND PARTS LIST

5-1. TOTAL EXPLODED VIEW



5-2. TOTAL PARTS LIST

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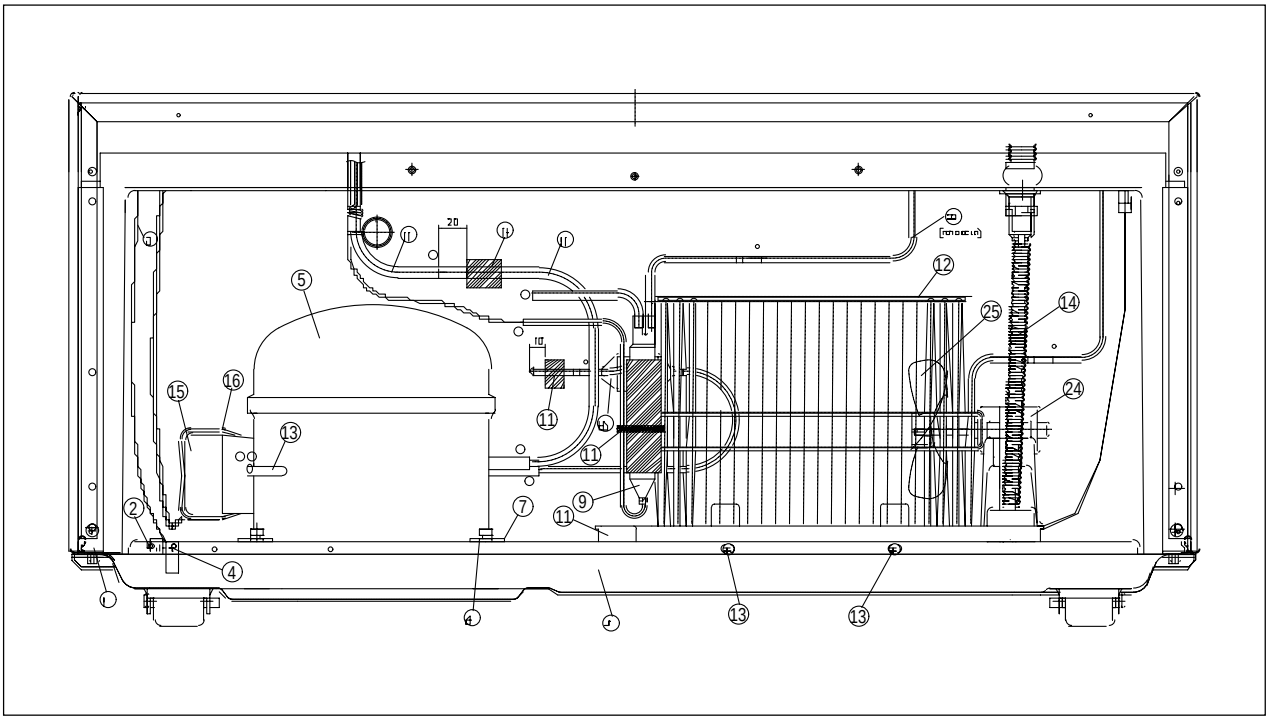
NO	PART CODE	PART NAME	PART DESCRIPTION	Q'TY	REMARK
1	3010018600	ASSY CAB URT	5080KB	1	
2	3012905400	HINGE *T	SCP-1 T2.3	1	
3	3016001230	SPECIAL BOLT T/U	M6X22	4	
4	3011429000	COVER *T HI	PP	1	
5	7112401211	SCREW TAPPING	T1 TRS 4X12 MFZN	2	
6	3010521900	COVER M-PCB BOX	PP VO	1	
7	3016401150	CAPACITOR RUN	400VAC 11μF	1	
8	3012712501	HARNESS RUN CONN		1	
9	3014386020	PCB MAIN AS		1	
10	3018120010	SWITCH TIMER DEFROST	TMDEX09UR1	1	
11	3012723400	HARNESS DEF TIMER		1	
12					
13	3010519800	BOX M/POWER	PP	1	
	3012905801	HINGE *M AS		1	
14	3012905501	HINGE *M		1	
15	3014901820	SHAFT *M HI	S20C	1	
16	3011424700	SPECIAL BOLT M	M6X20	3	
17	3011424700	COVER *M HI	ABS	1	
18	3012905600	HINGE *U		1	
19	3016005300	SPECIAL WASHER		1	
20	3016001230	SPECIAL BOLT T/U	M6X22	3	
21	3016500720	CASTER *F *L AS		1	
22	3016000700	SPECIAL SCREW	M5X15	2	
23	3012102501	FOOT ADJ *L AS		1	
24	3016500820	CASTER *F *R AS		1	
25	3012101501	FOOT ADJ AS		1	
26	3011448600	COVER CAB BRKT	PP	1	
27	7112401211	SCREW TAPPING	T1 TRS 4X12 MFZN	2	
28	3011301250	CORD POWER AS		1	
29	7112401211	SCREW TAPPING	T1 TRS 4X12 MFZN	1	
30	3011302900	FUSE GLASS TUBE	C12201	1	
31	3013202400	HOSE DRN AS		1	
32	7112401211	SCREW TAPPING	T1 TRS 4X12 MFZN	6	
33	3012400902	GRILL AS		1	
34	3014423320	COIL-CON AS		1	
35	3010102100	ABSORBER C MOTR	NR	1	
36	3012004400	FIXTURE C MOTR	SUS	1	
37	3015909800	MOTOR C	230V/50Hz	1	
38	3011802200	FAN	ABX OD3.17XD110	1	
39	3011200500	CLAMP FAN	SUS 304	1	
41	3016805310	DRYER AS		1	

NO	PART CODE	PART NAME	PART DESCRIPTION	Q'TY	REMARK
42	3011113610	CASE VAPORI	PP	1	
43	7112401211	SCREW TAPPING	T1 TRS 4X12 MFZN	1	
44	3956130R50	COMPRESSOR	HPL30YG-5	1	
45	3016002500	SPECIAL WASR	SK-5	4	
46	3018119980	SWITCH P RELAY AS	4TM308NHBYY-52, S330	1	
47	3012610000	CLAMP BAND RELAY	SK-5	1	
48	3010309110	BASE COMP AS	SBHG T1.2	1	
49	3016003300	SPECIAL BOLT	T2 M6.5X20	4	
50	7122401211	SCREW TAPPING	T2S TRS 4X12 MFZN	2	
	3018908000	LOUVER F B AS		1	
51	3012004001	FIXTURE MOTR	PP	1	
52	3012007800	FIXTURE MOTR A	PP	1	
53	3015906500	MOTOR R	BLDC	1	
54	3015905300	MOTOR F	BLDC	2	
55	3018908000	LOUVER F B	PP	1	
56	3011802200	FAN	ABS OD3.17XD110	2	
	3018909300	LOUVER F A AS		1	
57	3013335100	INSU F LUVR A	F-PS	1	
58	3018909300	LOUVER F A	HIPS	4	
59	7122401811	SCREW TAPPING	T2 TRS 4X18 MFZN	4	
60	3010924600	CAP F LUVR	HIPS	4	
61	3017820900	SHELF F AS	HIPS(5080NB/KB)	1	M-501
	3017820920	SHELF F AS	HIPS(5080NB/KB)	1	M-551
64	3011110200	CASE ICING	PE	2	
	3010519500	BOX ICE AS		1	
65	3012603400	HANDLE ICE BOX	ABS	1	
66	3011415500	COVER ICE BOX	GPPS	1	
67	3010519600	BOX ICE	HIPS	1	
68	3018301900	THERMOSTAT F		1	
68-1	3012723900	HARNESS THERMO F AS		1	
69	3012008000	FIXTURE F LAMP	HIPS	1	
70	3013501500	KNOB CONTL	ABS	1	
71	3017903700	SOCKET *F LAMP AS		1	
72	3123600080	LAMP AS	240V/15W	1	
73	3015504800	WINDOW F	PP	1	
74	3018100050	SWITCH DR	2 BUTTON/4P	1	
	3012508700	GUIDE V/CASE *M AS		1	
75	3012505600	GUIDE V/CASE *M		1	
76	3015304100	SUPPORTER ROLL B		1	
77	3014904300	SHAFT ROLLER		1	
78	3011110400	CASE VEGETB *L A	SAN	1	

NO	PART CODE	PART NAME	PART DESCRIPTION	Q'TY	REMARK
79	3011110700	CASE VEGETB *L B	HIPS(5080NB/KB)	1	
80	3011428702	COVER V/CASE	SAN(5080NB/KB)	1	M-501
	3011428602	COVER V/CASE	SAN(5080NB/KB)	1	M-551
81	3011110500	CASE VEGETB *R A	SAN	1	
82	3011111000	CASE VEGETB *R B	HIPS(5080NB/KB)	1	
83	3014700200	ROLLER V/CASE	*R/*L = 2/2	4	
84	3015303300	SUPPORTER ROLL	*R/*L = 2/2	4	
85	3017815002	SHELF R *U AS	GLASS(5080NB/KB)	1	M-501
	3017813102	SHELF R *U AS	GLASS(5080NB/KB)	1	M-551
86	3011111310	CASE CHILD	SAN(5080NB/KB)	1	
87	3017814902	SHELF R *T AS	GLASS(5080NB/KB)	1	M-501
	3017812602	SHELF R *T AS	GLASS(5080NB/KB)	1	M-551
88	7112401211	SCREW TAPPING	T2 TRS 4X12 MFZN	2	
89	3012507020	GUIDE *L AS	PA-6	1	
89-1	3012505010	GUIDE V/CASE *L		1	
89-2	3014700700	ROLLER *M		4	
89-3	3016006100	SPECIAL WASR		1	
89-4	7112401211	SCREW TAPPING	T1 TRS 4X12 MFZN	1	
90	3012507120	GUIDE *R AS	PA-6	1	
91	7122401611	SCREW TAPPING	T2S 4X16	4	
93	3011428900	COVER CUBIC DUCT	ABS	4	
	3018904500	LOUVER R *S *L AS			
94	3018904300	LOUVER R *S *L	PP	1	
95	3013324301	INSU *S *L	F-PS	1	
96	7112401611	SCREW TAPPING	T1 TRS 4X16 MFZN	2	
	3018908410	LOUVER *S *R AS		1	
97	3018904400	LOUVER *S *R	PP	1	
98	3013324401	INSU R *S *R	F-PS	1	
99	9010916800	CAP RETUN DUCT	ABS	1	
100	3011900600	FILTER CUBIC DEO	VINYLON T0.3	1	
101	3018701400	DEO ANTI CUBIC		1	
102	30155027000	WINDOW R	GPPS	1	
103	3013501500	KNOB CONTL	ABS	1	
104	3013601100	LAMP AS	240 [V] / 15 [W]	1	
105	3017903700	SOCKET *R LAMP AS		1	
106	7112401611	SCREW TAPPING	T1 TRS 4X16 MFZN	2	
107-1	3011444500	COVER RETUN DUCT	PP	1	
107-2	3011444600	COVER RETUN DUCT	PP	1	
108	3018302000	THERMOSTAT R		1	
109	3019012600	POCKET SM	HIPS	1	
110	3019012700	POCKET JUMBO	HIPS	1	

NO	PART CODE	PART NAME	PART DESCRIPTION	Q'TY	REMARK
110-1	3019012800	POCKET MULTI	HIPS	2	
111	3012509000	GUIDE JUMBO POCKET AS	ABS	1	
112	3019012500	POCKET EGG	HIPS	2	
113	3011161500	CASE EGG	GPPS	1	
114	3012307620	GASKET R DR AS	PVC-S	1	
115	3019012300	POCKET F *U	HIPS	1	
116	3019012200	POCKET F *T	HIPS	1	
117	3012307520	GASKET F DR AS	PCV-S	1	
118	3010017900	ASSY F DR	EMBOSS	1	
119	3010026300	ASSY R DR	EMBOSS	1	
120	3012610900	HANDLE F	ABS	1	
121	7002501611	SCREW MACHINE	TRS 5X16 MFZN	2	
122	3011609100	DECO F DR HNDL	ABS	1	
123	3012611000	HANDLE R	ABS	1	
124	7002501611	SCREW MATCHING	TRS 5X16 MFZN	2	
125	3011609200	DECO R DR HNDL	ABS	1	
126	3014532600	EMBLEM	AMCOR DESIGN	1	

5-3. MACHINE ROOM EXPLODED VIEW AND PARTS LIST



NO	PART NAME	NO	PART NAME	NO	PART NAME
1	BASE CAB *B	10	CABLE TIE	18	PIPE SUC CONN
2	SCREW MACHINE	11	CASE VAPORI AS	19	ABSORBER PIPE
3	CORD POWER AS	12	PIPE WI-CON AS	20	PIPE MUFFLER AS
4	SCREW TAPPING	13	SCREW TAPPING	21	ABSORBER PIPE A
5	COMPRESSOR	14	DRAIN HOSE B AS	22	PIPE HOT
6	ABSORBER COMP AS	15	SWITCH P-RELAY AS	23	PIPE SERVICE
7	WASHER SPECIAL	16	BAND RELAY	24	MOTOR C
8	BASE COMP AS	17	PIPE SUC AS	25	FAN C AS
9	DRYER AS				

DAEWOO

DAEWOO ELECTRONICS CO., LTD.
686, AHYEON-DONG MAPO-GU SEOUL, KOREA
C.P.O. BOX 8003 SEOUL, KOREA
TELEX: DWELEC K28177-8
CABLE: “DAEWOOELEC”

S/M NO. : FR631KD012

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